Resonant transmission of magneto-atmospheric waves in sunspots

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Oscillations of velocity and intensity, of the magnetic field in the photosphere as well, have been observed at all height levels of the atmosphere above sunspots from the photosphere up to the lower corona. We discuss the nonstationary behavior of intensity and velocity oscillations; they have been observed by SOHO in transition region lines formed in the EUV plume of a sunspot during a continuous time series of 4.3 hours. Applying a wavelet analysis, we find periods around 3 mHz with different periods in the observed EUV lines. Moreover, we discuss the observed oscillations within the frame of model calculations for the resonant transmission of magneto-atmospheric waves through realistic models of the sunspot subphotosphere and atmosphere.

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